



Rocky Flats Environmental Technology Site

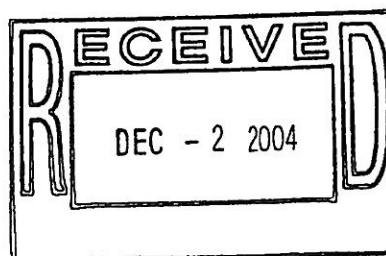
PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDINGS 731 and 732

REVISION 0

November 18, 2004

**Classification Review not required per
Exemption number CEX-005-02**



1/40
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ADMIN RECORD


B707-A-000144


PRE-DEMOLITION SURVEY REPORT (PDSR)

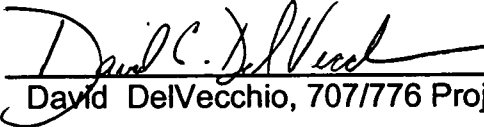
BUILDINGS 731 and 732

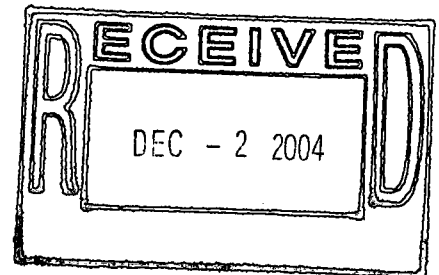
REVISION 0

November 18, 2004

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ADMIN RECORD

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- A Overview Map
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- C Chemical Data Summaries and Sample Maps
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ABBREVIATIONS/ACRONYMS

Be	Beryllium
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CDPHE	Colorado Department of Public Health and the Environment
DCGL _{EMC}	Derived Concentration Guideline Level – elevated measurement comparison
DCGL _W	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U.S. Department of Energy
DOP	Decommissioning Operations Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U.S. Environmental Protection Agency
LBP	Lead-based paint
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
N/A	Not Applicable
OSHA	Occupational Safety and Health Administration
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
PDSP	Pre-demolition survey plan
PDSR	Pre-demolition survey report
RCRA	Resource Conservation and Recovery Act
RFETS	Rocky Flats Environmental Technology Site
RLCR	Reconnaissance Level Characterization Report
RSA	Removable Surface Activity
RSP	Radiological Safety Practices
SCO	Surface Contaminated Object
TSA	Total surface activity
TSCA	Toxic Substances Control Act
V&V	Verification and Validation
VOCs	Volatile organic compounds
WEMS	Waste and Environmental Management System

EXECUTIVE SUMMARY

This PDSR addresses the pre-demolition surveys performed to define the final radiological and chemical condition of facilities 731 and 732 in accordance with decommissioning objectives. These structures were surveyed and as a result of the underground configuration of the facilities, **will not** be released in an unrestricted manner. Instead, the facilities will be demolished, and processed as radioactive waste. This demolition approach is consistent with the experience from other facilities where aggressive decontamination methods have taken the contamination into the soils. In addition, decontamination activities pose significant risks to the workers and are complicated by the narrow access/egress points associated with these both of these facilities. This situation was discussed with the State of Colorado and concurrence with the approach was documented in a Regulatory Contact Record dated September 16, 2004.

Because Buildings 731 and 732 are classified as type 2 structures and will be demolished, the characterization was performed on the building surfaces in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). However, the survey data will be used for Surface Contaminated Object (SCO) waste characterization of Buildings 731 and 732. Environmental media beneath and surrounding this structure is not within the scope of this PDS and will be addressed by Environmental Restoration.

The PDS encompassed both chemical and radiological characterization. The characterization was based on physical, chemical and radiological hazards identified in the facility-specific *Building 707 Closure Project Decommissioning Operations Plan* and the associated *Reconnaissance Level Characterization Report*.

Based upon the results of this PDSR, Buildings 731 and 732 do not meet the unrestricted release limits specified in the site Pre-Demolition Survey Plan. Upon concurrence of this report by CDPHE, the structures may be demolished and disposed of as radioactive waste.

1 INTRODUCTION

A pre-demolition survey was performed to define the final radiological and chemical condition of these facilities. Buildings 731 and 732 were categorized as Type 2 facilities based on the reconnaissance level characterization surveys. Because these structures will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). The results of this survey demonstrate Buildings 731 and 732 **do not** meet the unrestricted release limits specified in the Building 707 Decommissioning Operations Plan and will be disposed as radioactive waste. Environmental media beneath and surrounding this area was not within the scope of this PDS and will be addressed by Environmental Restoration.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Building 707 no longer supports the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before these structures can be demolished, the Data Quality Objectives (DQOs) for a Pre-Demolition Survey (PDS) must be satisfied. This document presents the PDS results of Buildings 731 and 732. The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP).

1.1 Purpose

The purpose of this report is to document the results of the 731 and 732 PDS effort. A PDS is performed prior to building demolition to define the pre-demolition radiological and chemical conditions of a facility. The pre-demolition conditions are compared with the release limits for radiological and non-radiological contaminants. PDS results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 Scope

This report presents the pre-demolition radiological and chemical conditions of Buildings 731 and 732. Environmental media beneath and surrounding the facility are not within the scope of this PDSR and will be addressed by Environmental Restoration.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this PDS were the same DQOs identified in the Section 2.0 of the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). Refer to section 2.0 of MAN-127-PDSP for these DQOs.

2 HISTORICAL SITE ASSESSMENT

A facility-specific Hazards Characterization Report was conducted to understand the facility history and related hazards. This report, *The Building 707 Closure Project Decommissioning Operations Plan (DOP)* and the associated *Reconnaissance Level Characterization Report (RLCR)*, Revision 0) focused on the more highly contaminated sections of the B707 cluster. Reconnaissance level characterization surveys were performed on these structures.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Buildings 731 and 732 were characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive material that is present on the facility surfaces.

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Measurements were performed to evaluate the contaminants of concern (weapons-grade plutonium isotopes). Based upon historical and process knowledge, in-process survey data, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan in the form of one (1) survey package was developed during the planning phase that describes the minimum survey requirements (refer to table 1 for the applicable survey units). As a result of the decision to handle 731 and 732 as radioactive waste, additional surveys were not performed on the exterior surfaces. The exterior surfaces of 731 and 732 were surveyed as part of the reconnaissance level characterization plan. Elevated total surface activity was discovered on the roof.

Table 1
Survey Breakdown Structure

Survey Unit	MARSSIM Class	Survey Unit Description	# of Measurements
707005	1	Interior surfaces of Buildings 731 and 732	15 random, and 167 biased

In addition to the TSAs and RSAs, 100% of the survey unit was scanned as required for Class 1 survey units.

Based on hazards characterization data and historical and process knowledge, as documented in Technical Basis Document 00168 *"Building 707/778 Technical Justification for Types of Radiological Surveys Performed"*, even though uranium contamination exists in B732, transuranic isotopes are the primary contaminants of concern in the Building 707 Cluster. Therefore, the PDS was performed to the transuranic PDS unrestricted release criteria. Individual radiological survey unit packages are maintained in the Building 707/776/777 Characterization Project files.

The survey unit package was developed in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure*. Total surface activity (TSA), removable surface activity (RSA), media samples, and scan measurements were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures*. Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis*. Radiological survey data, statistical analysis results, survey locations, scan data and radiological scan maps are presented in Attachment B, *Radiological Data Summary and Survey Maps*.

Survey Unit 707005

This survey unit is comprised of the interior floor, wall and ceiling surfaces in facilities 731 and 732. It is classified as a Class 1 survey unit. The classification was based on the high potential for contamination due to process history. A total of 15 random TSA and RSA measurements were collected in this the survey unit. 167 biased TSA measurements were collected at all locations of elevated activity. In addition, 4 media samples were obtained on the floor of each structure (731 and 732). Class 1 surface scan surveys of the accessible floor, wall, and ceiling surfaces were also performed at the scan frequencies specified above.

Many of the random and biased TSA survey results in survey unit 707005 were greater than the applicable PDS transuranic DCGL values. During the scanning process, contamination greater than DCGL_{emc} was detected at numerous locations on the floor and wall surfaces. These areas were investigated. Based on the contamination and configuration of the facilities underground, the decision was made not to remediate the surfaces and perform a survey for unrestricted release.

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The survey unit failed to meet the acceptance criteria of 100 dpm/100 cm² for the DCGL_w as well as 300 dpm/100 cm² for the DCGL_{emc}. See Attachment B for radiological survey data, investigation documentation, statistical analysis results, survey locations, and radiological scan maps for survey unit 707005.

4 CHEMICAL CHARACTERIZATION AND HAZARDS.

4.1 Asbestos

No asbestos-containing materials are present in these areas, which was verified by a certified asbestos abatement inspector.

4.2 Beryllium (Be)

All beryllium samples were obtained in accordance with the site PDSP. See the data summaries in Attachment C for sample results and locations.

4.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]

Based on a review of WEMS, Buildings 731 and 732 historically contained several Resource Conservation and Recovery Act (RCRA) 90-day storage units and satellite storage areas. All were appropriately closed, and no evidence of releases from these units was observed. Building 731 held two process waste tanks that were originally managed as RCRA 90-day tanks. They were closed by rinsing and sampling in the mid-1990s, and continued to be used for non-RCRA process waste until their removal in 2004. Building 732 contained a RCRA interim status tank (Unit 40.16) used to store laundry wastewater. The tank and associated filters and piping were closed by removal in accordance with the Building 707 DOP.

A visual inspection of Buildings 731 and 732 by 707 Environmental Compliance personnel verified that hazardous wastes and chemicals have been removed, including batteries, light bulbs and fluorescent tubes, and chemicals that were previously stored in the buildings.

No sampling has been conducted for lead in paint in B731 or B732. However, Environmental Waste Compliance Guidance #27, *Lead-Based Paint (LBP) and LBP Debris Disposal*, states that LBP debris generated outside of currently identified high contamination areas shall be managed as non-hazardous (solid) waste and need not be sampled unless the potentially lead-containing component is to be scabbled or otherwise comprise a separate waste stream.

As a result of these observations it has been determined that no further sampling for RCRA/CERCLA constituents is required. All building demolition debris can be compliantly disposed as non-hazardous low-level waste.

4.4 Polychlorinated Biphenyls (PCBs)

Buildings 731 and 732 have never been used to store PCB waste containers. Light ballasts and capacitors have been removed. No sampling has been conducted for PCBs in paint in B731 or B732. However, Environmental Waste Compliance Guidance #25, *Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition*, states that applied dried paints are acceptable for disposal (with notification) in a non-hazardous solid waste landfill as PCB bulk product waste and need not be sampled.

4.5 Freon

No Freon-containing equipment was present in Buildings 731 or 732.

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4.6 Physical hazards

Physical hazards associated with Buildings 731 and 732 consist of those common to standard industrial environments, and include hazards associated with energized systems, utilities, and trips and falls. The buildings are located predominantly below grade and have limited access via narrow stairways. The facilities have been relatively well maintained and are in good physical condition, and therefore, do not present hazards associated with building deterioration.

Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices. A structural engineer will evaluate the structure prior to demolition as required by the B707 DOP, to assess any structural issues associated with the proposed demolition methods and sequence.

5 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of Buildings 731 and 732 and consequent waste management is of adequate quality to support the decisions documented in this report. The data presented in this report (Attachment B) was verified and validated relative to DOE quality requirements, applicable EPA guidance, and original project DQOs. DQAs for radiological surveys and beryllium analyses are included in this report. The facilities have been verified to be free of asbestos, PCBs, and RCRA/CERCLA materials through in-process characterization and final facility walkdowns, and no further sampling for these chemical constituents was required.

In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate:

- ◆ the *number* of samples and surveys;
- ◆ the *types* of samples and surveys;
- ◆ the sampling/survey process as implemented "in the field"; and
- ◆ the laboratory analytical process, relative to accuracy and precision considerations.

Details of the DQA are presented in Attachment D. The DQA Checklists are provided in the individual survey unit packages (located in the Building 707 Characterization Files).

The Minimum Detectable Activity (MDA) for each PDS instrument was determined *a priori* based on typical parameters (background, efficiency, and count time). A list of radiological field instrumentation and associated sensitivities is presented in the following Table.

Table 2
PDS Radiological Field Instrumentation
& Minimum Detectable Activities

Model	Measurement Type	MDA (dpm/100 cm ²)
NE Electra DP6	TSA	48
NE Electra AP6	Scan	300
Eberline SAC-4	Removable (Smears)	10
Bartlett FSM	Scan	300

6. DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Buildings 731 and 732 will generate a variety of wastes. All waste identified will be disposed of as low-level radioactive waste.

7. FACILITY CLASSIFICATION AND CONCLUSIONS

Based upon the results of this PDSR, Buildings 731 and 732 **do not** meet the unrestricted release limits and shall be handled as radioactive waste. The PDS for Buildings 731 and 732 was performed in accordance with the DDCP and PDSP. All PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. However, the survey data will be used for Surface Contaminated Object (SCO) waste characterization of Buildings 731 and 732.

The facilities have been verified to be free of asbestos, PCBs, and RCRA/CERCLA materials through in-process characterization and final facility walkdowns, and the remaining structures may be compliantly disposed as non-hazardous low-level waste.

Based upon this PDSR, Buildings 731 and 732 are acceptable to demolish, and the debris will be managed as radioactive waste.

8. REFERENCES

Building 707 Closure Project Decommissioning Operations Plan, Revision 0, December 21, 2000

Building 707 Reconnaissance Level Characterization Report, August 1, 2000

DOE Order 5400.5, *Radiation Protection of the Public and the Environment*

DOE Order 414.1A, *Quality Assurance*

MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 1, November 1, 2001.

MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 3, January 1, 2002.

MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 4, July 15, 2002.

MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 1, July 15, 2002.

MARSSIM - *Multi-Agency Radiation Survey and Site Investigation Manual* (NUREG-1575, EPA 402-R-97-016).

PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure*, Rev. 1, May 22, 2001.

PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 2, March 10, 2003.

PRO-477-RSP-16.03, *Radiological Samples of Building Media*, Rev. 1, May 22, 2001.

PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-563-ACPR, *Asbestos Characterization Procedure*, Revision 0, August 24, 1999.

PRO-536-BCPR, *Beryllium Characterization Procedure*, Revision 0, August 24, 1999.

RFETS, *Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition*, April 5, 1999.

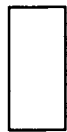
RFETS, *Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and LBP Debris Disposal*, November 4, 2002

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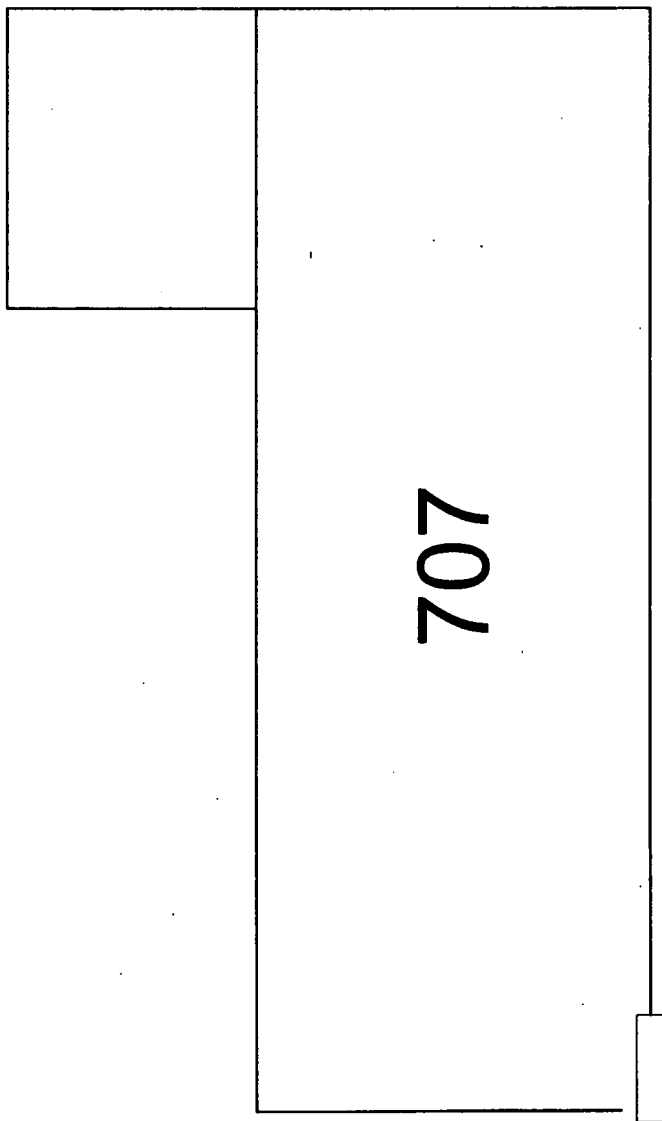
ATTACHMENT A

Building 731 and 732 Overview Map

731/732 Overview



732



731



ATTACHMENT B

Survey Unit 707005 Maps and Data Summary

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

Survey Area: A

Survey Unit: 707005

Classification: 1

Building: 707

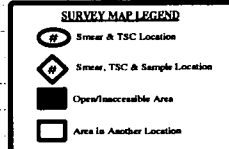
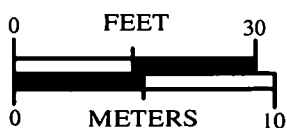
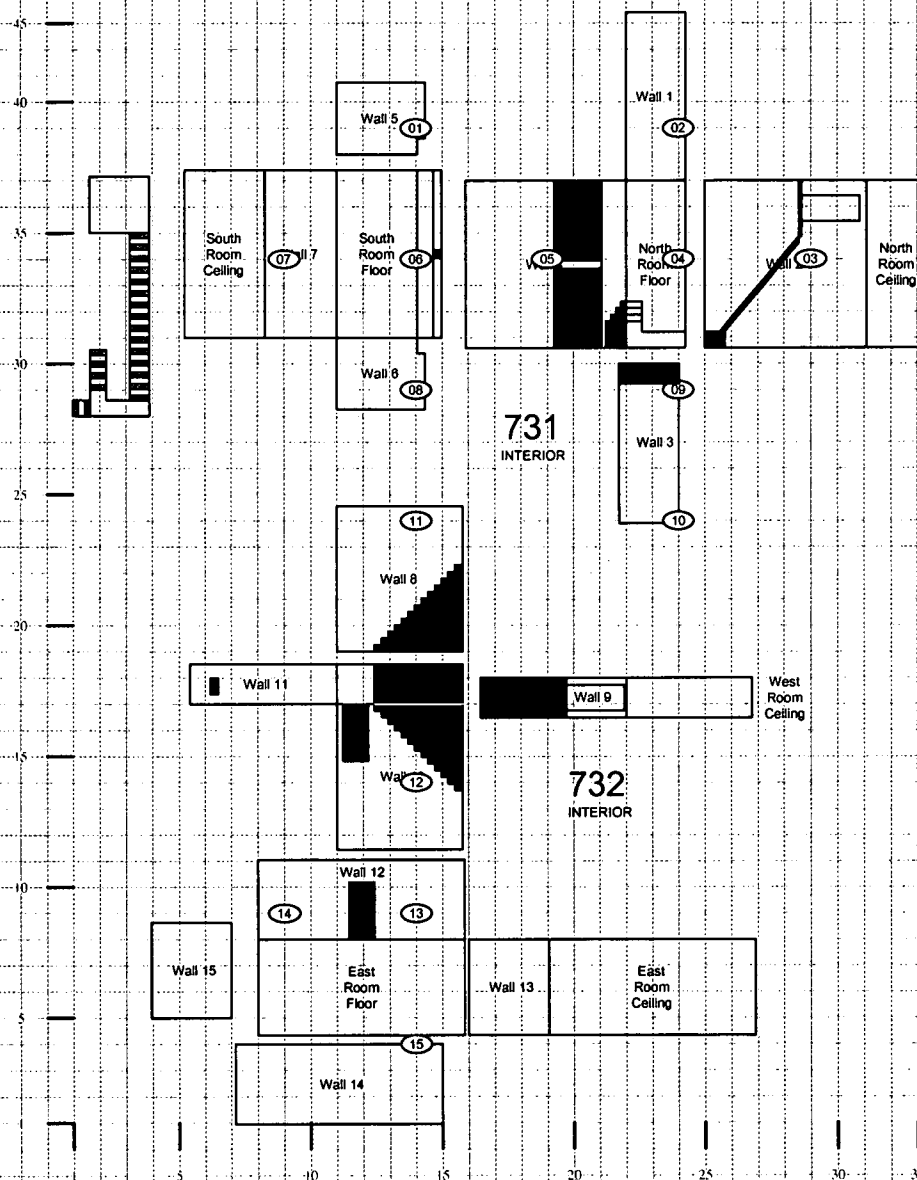
Survey Unit Description: B731 & B732 Interiors

Total Floor Area: 76 sq. m

Total Area: 398 sq. m

Grid Size: 5 x 5 sq.m.

SURVEY UNIT 707005 - MAP 1 OF 1



Survey Area: A**Survey Unit:** 707005**Building:** 707**Description:** Interior of B731 Plenum Deluge/Process waste pit and B732-Laundry pump vault

Rocky Flats Environmental Technology Site Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 15

Nbr Biased Measurements Required: 0

Nbr QC Required: 0

Nbr Random Measurements Performed: 15

Nbr Biased Measurements Performed: 167

Nbr QC Performed: 0

Alpha

Maximum: 46,725.7 dpm/100cm²Minimum: -22.4 dpm/100cm²Mean: 4,208.1 dpm/100cm²

Standard Deviation: 6,495.2

QC Maximum: NA dpm/100cm²QC Minimum: NA dpm/100cm²QC Mean: NA dpm/100cm²Transuranic DCGL^W: 100.0 dpm/100cm²Transuranic DCGL^{EMC}: 300.0 dpm/100cm²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 15

Nbr Biased Measurements Required: 0

Nbr Random Measurements Performed: 15

Nbr Biased Measurements Performed: 34

Alpha

Maximum: 9.0 dpm/100cm²Minimum: -0.6 dpm/100cm²Mean: 0.7 dpm/100cm²

Standard Deviation: 2.0

Transuranic DCGL^W: 20.0 dpm/100cm²

Media Sample Results

Nbr Random Required: 8

Nbr Biased Required: 0

Nbr Random Collected: 8

Nbr Biased Collected: 0

Uranium

Maximum: NA dpm/100cm²Minimum: NA dpm/100cm²Mean: NA dpm/100cm²

Standard Deviation: NA

Uranium DCGL^W: 5,000 dpm/100cm²Uranium DCGL^{EMC}: 15,000 dpm/100cm²

Transuranic

Maximum: 4,837 dpm/100cm²Minimum: 35 dpm/100cm²Mean: 1,902 dpm/100cm²

Standard Deviation: 1,911

Transuranic DCGL^W: 100 dpm/100cm²Transuranic DCGL^{EMC}: 300 dpm/100cm²

Conclusion - A comparison of the random, biased and QC measurement results against the PDSP Table 7-1 Surface Contamination Guideline limits was conducted; the comparison demonstrates that this survey unit passes the criterion specified in the PDSP.

Survey Area: A

Survey Unit: 707005

Building: 707

Description: Interior of B731 Plenum Deluge/Process waste pit and B732-Laundry pump vault

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm ²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	509552	08/31/04	SAC-4	957	NA	11/05/04	0.333	NA	10.0	NA	R
2	509284	09/01/04	SAC-4	1057	NA	02/20/05	0.333	NA	10.0	NA	R
3	509552	09/02/04	SAC-4	955	NA	02/23/05	0.333	NA	10.0	NA	R
4	509552	09/02/04	SAC-4	1469	NA	11/27/04	0.333	NA	10.0	NA	R
5	509552	08/23/04	SAC-4	1469	NA	11/27/04	0.333	NA	10.0	NA	R
6	509552	08/23/04	Electra	1384	DP-6	01/16/05	0.216	NA	48.0	NA	T
7	511510	08/31/04	Electra	1384	DP-6	01/16/05	0.216	NA	48.0	NA	T
8	511798	09/01/04	Electra	4396	DP-6	02/20/05	0.210	NA	48.0	NA	T
9	511510	09/02/04	Electra	2166	DP-6	01/22/05	0.223	NA	48.0	NA	T
10	509552	09/02/04	Electra	1384	DP-6	01/16/05	0.216	NA	48.0	NA	T
11	512999	09/01/04	Electra	4396	DP-6	02/20/05	0.210	NA	48.0	NA	I/S
12	511798	09/01/04	Electra	2166	DP-6	01/22/05	0.223	NA	48.0	NA	I/S
13	512999	08/26/04	Electra	1384	DP-6	01/16/05	0.216	NA	48.0	NA	I/S
14	511798	08/26/04	Electra	2124	DP-6	11/18/04	0.214	NA	48.0	NA	I/S

Survey Types: T = Total Surface Activity, Q = TSA QC, S = Scan, R = Removable Surface Activity, I = Investigation

Survey Area: A**Survey Unit:** 707005**Building:** 707**Description:** Interior of B731 Plenum Deluge/Process waste pit and B732-Laundry pump vault**Random Removable Surface Activity Data Sheet**

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
707005PRP-N001	5	-0.6	N/A	
707005PRP-N002	5	-0.6	N/A	
707005PRP-N003	5	-0.6	N/A	
707005PRP-N004	5	-0.6	N/A	
707005PRP-N005	5	-0.6	N/A	
707005PRP-N006	5	-0.6	N/A	
707005PRP-N007	5	-0.6	N/A	
707005PRP-N008	5	-0.6	N/A	
707005PRP-N009	5	0.9	N/A	
707005PRP-N010	5	-0.6	N/A	
707005PRP-N011	5	-0.6	N/A	
707005PRP-N012	5	-0.6	N/A	
707005PRP-N013	5	0.9	N/A	
707005PRP-N014	5	-0.6	N/A	
707005PRP-N015	5	-0.6	N/A	

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Survey Area: A**Survey Unit:** 707005**Building:** 707**Description:** Interior of B731 Plenum Deluge/Process waste pit and B732-Laundry pump vault**Biased Removable Surface Activity Data Sheet**

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
707005PBP-N016	1	1.5	N/A	
707005PBP-N017	1	1.5	N/A	
707005PBP-N018	1	9.0	N/A	
707005PBP-N019	1	0.0	N/A	
707005PBP-N020	1	1.5	N/A	
707005PBP-N021	1	3.0	N/A	
707005PBP-N022	1	0.0	N/A	
707005PBP-N023	1	0.0	N/A	
707005PBP-N024	2	-0.3	N/A	
707005PBP-N025	2	-0.3	N/A	
707005PBP-N026	2	-0.3	N/A	
707005PBP-N027	2	1.2	N/A	
707005PBP-N028	2	-0.3	N/A	
707005PBP-N029	2	-0.3	N/A	
707005PBP-N030	2	1.2	N/A	
707005PBP-N031	2	-0.3	N/A	
707005PBP-N032	2	1.2	N/A	
707005PBP-N033	2	1.2	N/A	
707005PBP-N034	2	-0.3	N/A	
707005PBP-N035	3	2.7	N/A	
707005PBP-N036	3	4.2	N/A	
707005PBP-N037	3	2.7	N/A	
707005PBP-N038	3	-0.3	N/A	
707005PBP-N039	3	-0.3	N/A	
707005PBP-N040	3	1.2	N/A	
707005PBP-N041	3	-0.3	N/A	
707005PBP-N042	3	1.2	N/A	

Survey Area: A**Survey Unit:** 707005**Building:** 707**Description:** Interior of B731 Plenum Deluge/Process waste pit and B732-Laundry pump vault**Biased Removable Surface Activity Data Sheet**

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
707005PBP-N043	3	-0.3	N/A	
707005PBP-N044	3	-0.3	N/A	
707005PBP-N045	3	-0.3	N/A	
707005PBP-N046	4	-0.3	N/A	
707005PBP-N047	4	4.2	N/A	
707005PBP-N048	4	1.2	N/A	
707005PBP-N049	4	7.2	N/A	

Comments:

Survey Area: A**Survey Unit:** 707005**Building:** 707**Description:** Interior of B731 Plenum Deluge/Process waste pit and B732-Laundry pump vault**Random/QC Total Surface Activity Data Sheet**

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
707005PRP-N001	6	-22.4	N/A	
707005PRP-N002	6	-19.1	N/A	
707005PRP-N003	6	5.4	N/A	
707005PRP-N004	6	-6.6	N/A	
707005PRP-N005	6	16.0	N/A	
707005PRP-N006	6	8.6	N/A	
707005PRP-N007	6	11.9	N/A	
707005PRP-N008	6	5.4	N/A	
707005PRP-N009	6	-6.6	N/A	
707005PRP-N010	6	-0.6	N/A	
707005PRP-N011	6	-0.6	N/A	
707005PRP-N012	6	-19.1	N/A	
707005PRP-N013	6	8.6	N/A	
707005PRP-N014	6	-13.1	N/A	
707005PRP-N015	6	-9.9	N/A	

Survey Area: A**Survey Unit:** 707005**Building:** 707**Description:** Interior of B731 Plenum Deluge/Process waste pit and B732-Laundry pump vault**Biased Total Surface Activity Data Sheet**

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
707005PBP-N016	7	52.3	N/A	
707005PBP-N017	7	27.7	N/A	
707005PBP-N018	7	388.8	N/A	
707005PBP-N019	7	43.0	N/A	
707005PBP-N020	7	21.2	N/A	
707005PBP-N021	7	55.5	N/A	
707005PBP-N022	7	55.5	N/A	
707005PBP-N023	7	39.8	N/A	
707005PBP-N024	8	9.6	N/A	
707005PBP-N025	8	15.7	N/A	
707005PBP-N026	8	34.8	N/A	
707005PBP-N027	8	34.8	N/A	
707005PBP-N028	8	19.1	N/A	
707005PBP-N029	8	130.0	N/A	
707005PBP-N030	8	6.2	N/A	
707005PBP-N031	8	19.1	N/A	
707005PBP-N032	8	12.4	N/A	
707005PBP-N033	8	9.6	N/A	
707005PBP-N034	8	9.6	N/A	
707005PBP-N035	9	38.4	N/A	
707005PBP-N036	9	83.2	N/A	
707005PBP-N037	9	42.9	N/A	
707005PBP-N038	9	26.7	N/A	
707005PBP-N039	9	29.4	N/A	
707005PBP-N040	9	29.4	N/A	
707005PBP-N041	9	32.6	N/A	
707005PBP-N042	9	23.6	N/A	

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Survey Area: A**Survey Unit:** 707005**Building:** 707**Description:** Interior of B731 Plenum Deluge/Process waste pit and B732-Laundry pump vault**Biased Total Surface Activity Data Sheet**

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
707005PBP-N043	9	17.8	N/A	
707005PBP-N044	9	29.4	N/A	
707005PBP-N045	9	20.5	N/A	
707005PBP-N046	10	320.8	N/A	
707005PBP-N047	10	21.2	N/A	
707005PBP-N048	10	6.0	N/A	
707005PBP-N049	10	21.2	N/A	
707005PBP-N050	11	2,496.7	N/A	
707005PBP-N051	11	1,996.7	N/A	
707005PBP-N052	11	2,853.8	N/A	
707005PBP-N053	11	3,091.9	N/A	
707005PBP-N054	11	1,972.9	N/A	
707005PBP-N055	11	5,472.9	N/A	
707005PBP-N056	12	2,238.9	N/A	
707005PBP-N057	12	2,014.6	N/A	
707005PBP-N058	12	4,481.0	N/A	
707005PBP-N059	12	8,135.7	N/A	
707005PBP-N060	11	1,901.5	N/A	
707005PBP-N061	11	5,711.0	N/A	
707005PBP-N062	11	2,377.7	N/A	
707005PBP-N063	11	2,853.8	N/A	
707005PBP-N064	11	2,377.7	N/A	
707005PBP-N065	11	2,377.7	N/A	
707005PBP-N066	12	2,687.3	N/A	
707005PBP-N067	12	1,790.4	N/A	
707005PBP-N068	12	3,359.9	N/A	
707005PBP-N069	12	1,790.4	N/A	

Survey Area: A**Survey Unit:** 707005**Building:** 707**Description:** Interior of B731 Plenum Deluge/Process waste pit and B732-Laundry pump vault**Biased Total Surface Activity Data Sheet**

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
707005PBP-N070	12	2,238.9	N/A	
707005PBP-N071	12	2,238.9	N/A	
707005PBP-N072	11	2,377.7	N/A	
707005PBP-N073	11	2,377.7	N/A	
707005PBP-N074	11	1,425.3	N/A	
707005PBP-N075	11	4,758.6	N/A	
707005PBP-N076	11	4,758.6	N/A	
707005PBP-N077	12	2,238.9	N/A	
707005PBP-N078	12	2,777.0	N/A	
707005PBP-N079	12	4,481.0	N/A	
707005PBP-N080	12	44,839.7	N/A	
707005PBP-N081	12	4,481.0	N/A	
707005PBP-N082	12	2,238.9	N/A	
707005PBP-N083	11	4,758.6	N/A	
707005PBP-N084	11	2,377.7	N/A	
707005PBP-N085	11	4,758.6	N/A	
707005PBP-N086	11	9,520.5	N/A	
707005PBP-N087	11	7,139.6	N/A	
707005PBP-N088	12	2,238.9	N/A	
707005PBP-N089	12	1,566.2	N/A	
707005PBP-N090	12	1,566.2	N/A	
707005PBP-N091	12	1,566.2	N/A	
707005PBP-N092	12	2,238.9	N/A	
707005PBP-N093	12	1,566.2	N/A	
707005PBP-N094	11	14,282.4	N/A	
707005PBP-N095	11	4,758.6	N/A	
707005PBP-N096	11	3,568.1	N/A	

Survey Area: A**Survey Unit:** 707005**Building:** 707**Description:** Interior of B731 Plenum Deluge/Process waste pit and B732-Laundry pump vault**Biased Total Surface Activity Data Sheet**

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
707005PBP-N097	11	1,901.5	N/A	
707005PBP-N098	11	2,377.7	N/A	
707005PBP-N099	12	2,911.5	N/A	
707005PBP-N100	12	2,238.9	N/A	
707005PBP-N101	12	1,790.4	N/A	
707005PBP-N102	12	2,238.9	N/A	
707005PBP-N103	12	2,238.9	N/A	
707005PBP-N104	12	4,481.0	N/A	
707005PBP-N105	11	1,663.4	N/A	
707005PBP-N106	11	2,377.7	N/A	
707005PBP-N107	11	1,425.3	N/A	
707005PBP-N108	11	5,711.0	N/A	
707005PBP-N109	11	2,853.8	N/A	
707005PBP-N110	12	1,342.0	N/A	
707005PBP-N111	12	1,342.0	N/A	
707005PBP-N112	12	22,418.2	N/A	
707005PBP-N113	12	2,687.3	N/A	
707005PBP-N114	12	10,938.4	N/A	
707005PBP-N115	12	8,965.3	N/A	
707005PBP-N116	11	23,806.2	N/A	
707005PBP-N117	11	7,139.6	N/A	
707005PBP-N118	12	3,359.9	N/A	
707005PBP-N119	12	2,238.9	N/A	
707005PBP-N120	12	1,790.4	N/A	
707005PBP-N121	13	1,617.1	N/A	
707005PBP-N122	13	2,774.5	N/A	
707005PBP-N123	13	5,552.3	N/A	

Survey Area: A

Survey Unit: 707005

Building: 707

Description: Interior of B731 Plenum Deluge/Process waste pit and B732-Laundry pump vault

Biased Total Surface Activity Data Sheet

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
707005PBP-N124	13	27,774.5	N/A	
707005PBP-N125	13	8,330.0	N/A	
707005PBP-N126	13	1,663.4	N/A	
707005PBP-N127	13	4,607.8	N/A	
707005PBP-N128	13	2,218.9	N/A	
707005PBP-N129	13	2,311.5	N/A	
707005PBP-N130	13	2,496.7	N/A	
707005PBP-N131	13	16,200.4	N/A	
707005PBP-N132	13	3,607.8	N/A	
707005PBP-N133	13	5,552.3	N/A	
707005PBP-N134	13	5,552.3	N/A	
707005PBP-N135	13	13,885.6	N/A	
707005PBP-N136	13	13,885.6	N/A	
707005PBP-N137	13	9,256.0	N/A	
707005PBP-N138	13	1,478.2	N/A	
707005PBP-N139	13	3,607.8	N/A	
707005PBP-N140	13	3,885.6	N/A	
707005PBP-N141	13	1,478.2	N/A	
707005PBP-N142	13	1,663.4	N/A	
707005PBP-N143	13	1,478.2	N/A	
707005PBP-N144	13	2,218.9	N/A	
707005PBP-N145	13	3,330.0	N/A	
707005PBP-N146	13	4,163.4	N/A	
707005PBP-N147	13	4,163.4	N/A	
707005PBP-N148	13	13,885.6	N/A	
707005PBP-N149	13	13,885.6	N/A	
707005PBP-N150	13	1,848.6	N/A	

Survey Area: A**Survey Unit:** 707005**Building:** 707**Description:** Interior of B731 Plenum Deluge/Process waste pit and B732-Laundry pump vault**Biased Total Surface Activity Data Sheet**

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
707005PBP-N151	13	2,496.7	N/A	
707005PBP-N152	13	11,107.8	N/A	
707005PBP-N153	13	8,330.0	N/A	
707005PBP-N154	14	6,071.5	N/A	
707005PBP-N155	14	2,239.7	N/A	
707005PBP-N156	14	2,239.7	N/A	
707005PBP-N157	14	2,800.4	N/A	
707005PBP-N158	14	3,080.8	N/A	
707005PBP-N159	14	5,604.2	N/A	
707005PBP-N160	14	4,669.6	N/A	
707005PBP-N161	14	5,604.2	N/A	
707005PBP-N162	14	3,641.6	N/A	
707005PBP-N163	14	3,735.0	N/A	
707005PBP-N164	14	2,333.1	N/A	
707005PBP-N165	14	5,604.2	N/A	
707005PBP-N166	14	2,800.4	N/A	
707005PBP-N167	14	5,604.2	N/A	
707005PBP-N168	14	11,678.9	N/A	
707005PBP-N169	14	16,351.8	N/A	
707005PBP-N170	14	16,351.8	N/A	
707005PBP-N171	14	11,678.9	N/A	
707005PBP-N172	14	16,351.8	N/A	
707005PBP-N173	14	1,398.6	N/A	
707005PBP-N174	14	16,351.8	N/A	
707005PBP-N175	14	5,604.2	N/A	
707005PBP-N176	14	4,202.3	N/A	
707005PBP-N177	14	2,239.7	N/A	

Survey Area: A

Survey Unit: 707005

Building: 707

Description: Interior of B731 Plenum Deluge/Process waste pit and B732-Laundry pump vault

Biased Total Surface Activity Data Sheet

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
707005PBP-N178	14	5,604.2	N/A	
707005PBP-N179	14	2,333.1	N/A	
707005PBP-N180	14	2,800.4	N/A	
707005PBP-N181	14	16,819.1	N/A	
707005PBP-N182	14	46,725.7	N/A	

Comments: Beta activity up to 100,000 dpm/100 cm2 detected during the scan process.

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Survey Area: A

Survey Unit: 707005

Building: 707

Description: Interior of B731 Plenum Deluge/Process waste pit and B732-Laundry pump vault

Media Samples Data Sheet

Site Sample ID / Nbr Description	Nuclide	Sample (dpm)	Sample MDA (dpm)		Surface Area (in ²)	Sample Nuclide (dpm/100cm ²)	Sample Nuclide MDA (dpm/100cm ²)	Sample Total (dpm/100cm ²)
FSU-707005-001 41 Floor	U234	NA	NA		26.3	NA	NA	Uranium NA Transuranic 4,366
	U235	NA	NA			NA	NA	
	U238	NA	NA			NA	NA	
	Pu239/240	6,482.0	NA			3,820	NA	
	Am241	926.0	NA			546	NA	
FSU-707005-002 42 Floor	U234	NA	NA		26.3	NA	NA	Uranium NA Transuranic 4,837
	U235	NA	NA			NA	NA	
	U238	NA	NA			NA	NA	
	Pu239/240	7,182.0	NA			4,233	NA	
	Am241	1,026.0	NA			605	NA	
FSU-707005-003 43 Floor	U234	NA	NA		26.3	NA	NA	Uranium NA Transuranic 2,886
	U235	NA	NA			NA	NA	
	U238	NA	NA			NA	NA	
	Pu239/240	4,284.0	NA			2,525	NA	
	Am241	612.0	NA			361	NA	
FSU-707005-004 44 Floor	U234	NA	NA		26.3	NA	NA	Uranium NA Transuranic 1,589
	U235	NA	NA			NA	NA	
	U238	NA	NA			NA	NA	
	Pu239/240	2,359.0	NA			1,390	NA	
	Am241	337.0	NA			199	NA	
FSU-707005-005 183 Floor	U234	NA	NA		26.3	NA	NA	Uranium NA Transuranic 1,009
	U235	NA	NA			NA	NA	
	U238	NA	NA			NA	NA	
	Pu239/240	1,498.0	NA			883	NA	
	Am241	214.0	NA			126	NA	
FSU-707005-006 184 Floor	U234	NA	NA		26.3	NA	NA	Uranium NA Transuranic 126
	U235	NA	NA			NA	NA	
	U238	NA	NA			NA	NA	
	Pu239/240	187.6	NA			111	NA	
	Am241	26.8	NA			16	NA	
FSU-707005-007 185 Floor	U234	NA	NA		26.3	NA	NA	Uranium NA Transuranic 364
	U235	NA	NA			NA	NA	
	U238	NA	NA			NA	NA	
	Pu239/240	539.7	NA			318	NA	
	Am241	77.1	NA			45	NA	

Comments:

Survey Area: A**Survey Unit:** 707005**Building:** 707**Description:** Interior of B731 Plenum Deluge/Process waste pit and B732-Laundry pump vault

Media Samples Data Sheet

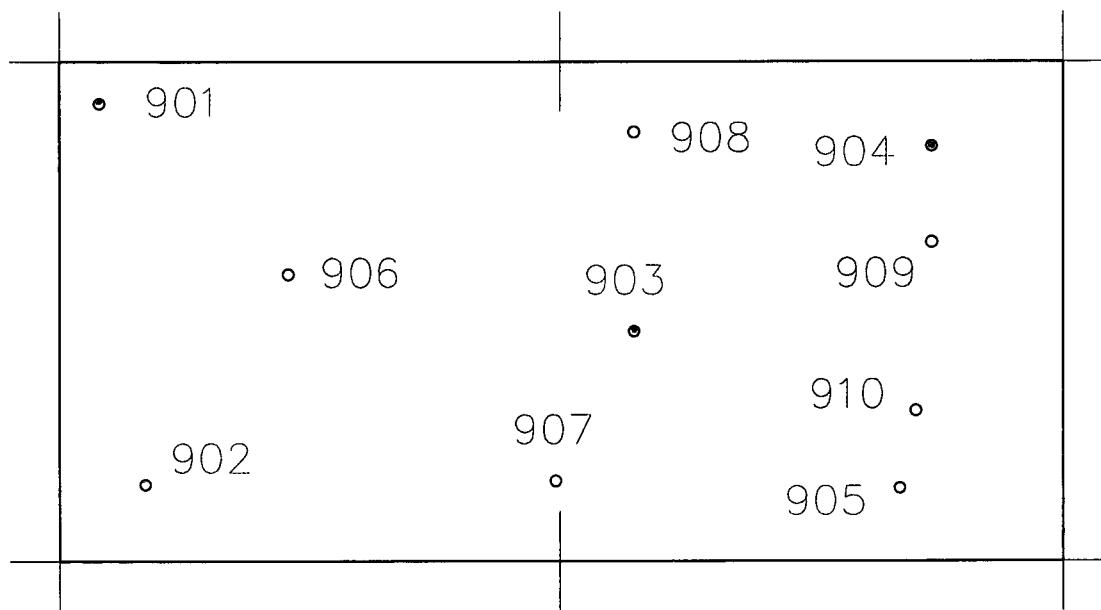
Site Sample ID / Nbr Description	Nuclide	Sample (dpm)	Sample MDA (dpm)		Surface Area (in ²)	Sample Nuclide (dpm/100cm ²)	Sample Nuclide MDA (dpm/100cm ²)	Sample Total (dpm/100cm ²)
FSU-707005-008 186 Floor	U234	NA	NA		26.3	NA	NA	Uranium NA Transuranic 35
	U235	NA	NA			NA	NA	
	U238	NA	NA			NA	NA	
	Pu239/240	51.8	NA			31	NA	
	Am241	7.4	NA			4	NA	

ATTACHMENT C

Chemical Data Summaries and Sample Maps



N



776 1st Floor Be Sample Locations
731 Pit

731-10122004-31-xxx (Floor)

731-10122004-31-xxx (Elevated)

Beryllium Contamination Closeout of Building 731

The historical record indicates this building was not on the beryllium historical list. Surveys collected inside the tanks during tank removal, found no removable beryllium surface contamination. The tank and all associated pipe was removed prior to the final survey.

The final beryllium surveys for this survey unit was collected on October 12, 2004. All samples collected were below the reporting limit of $0.1 \text{ ug}/100 \text{ cm}^2$. Samples were collected on horizontal surface from floor to ceiling.

Since no removable beryllium was detected, no further sampling is required.

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IHISR_SAMPLE_RESULTS_REPORT

Date: 11/19/2004

Industrial Hygiene Information System
Sample Results Report

Page: 1 of 1

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
731-10122004-31-901	SURVEY	1	FINAL SURVEY, NW QUADRANT FLOOR	WIPE	05C0008	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
731-10122004-31-902	SURVEY	1	FINAL SURVEY, SW QUADRANT FLOOR	WIPE	05C0008	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
731-10122004-31-903	SURVEY	1	FINAL SURVEY, CENTER ROOM FLOOR	WIPE	05C0008	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
731-10122004-31-904	SURVEY	1	FINAL SURVEY, NE QUADRANT FLOOR	WIPE	05C0008	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
731-10122004-31-905	SURVEY	1	FINAL SURVEY, SE QUADRANT, FLOOR	WIPE	05C0008	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
731-10122004-31-906	SURVEY	1	FINAL SURVEY, WEST CENTER BRACKET	WIPE	05C0008	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
731-10122004-31-907	SURVEY	1	FINAL SURVEY SOUTH BRACKET	WIPE	05C0008	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
731-10122004-31-908	SURVEY	1	FINAL SURVEY NORTH CENTER BRACKET	WIPE	05C0008	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
731-10122004-31-909	SURVEY	1	FINAL SURVEY NE QUADRANT RAIL	WIPE	05C0008	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
731-10122004-31-910	SURVEY	1	FINAL SURVEY, SE QUADRANT BRACKET	WIPE	05C0008	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
731-10122004-31-911				BLANK	05C0008	BERYLLIUM AND B	< 0.1000 _ UG

Building Subtotal: 11

Hygienist Subtotal: 11

Company Subtotal: 11

Grand Total 11

PGS 34, 37

DOES NOT CONTAIN

OFFICIAL USE ONLY INFORMATION

Name/Org. Sgt. A. L. / per Date 11/5/08

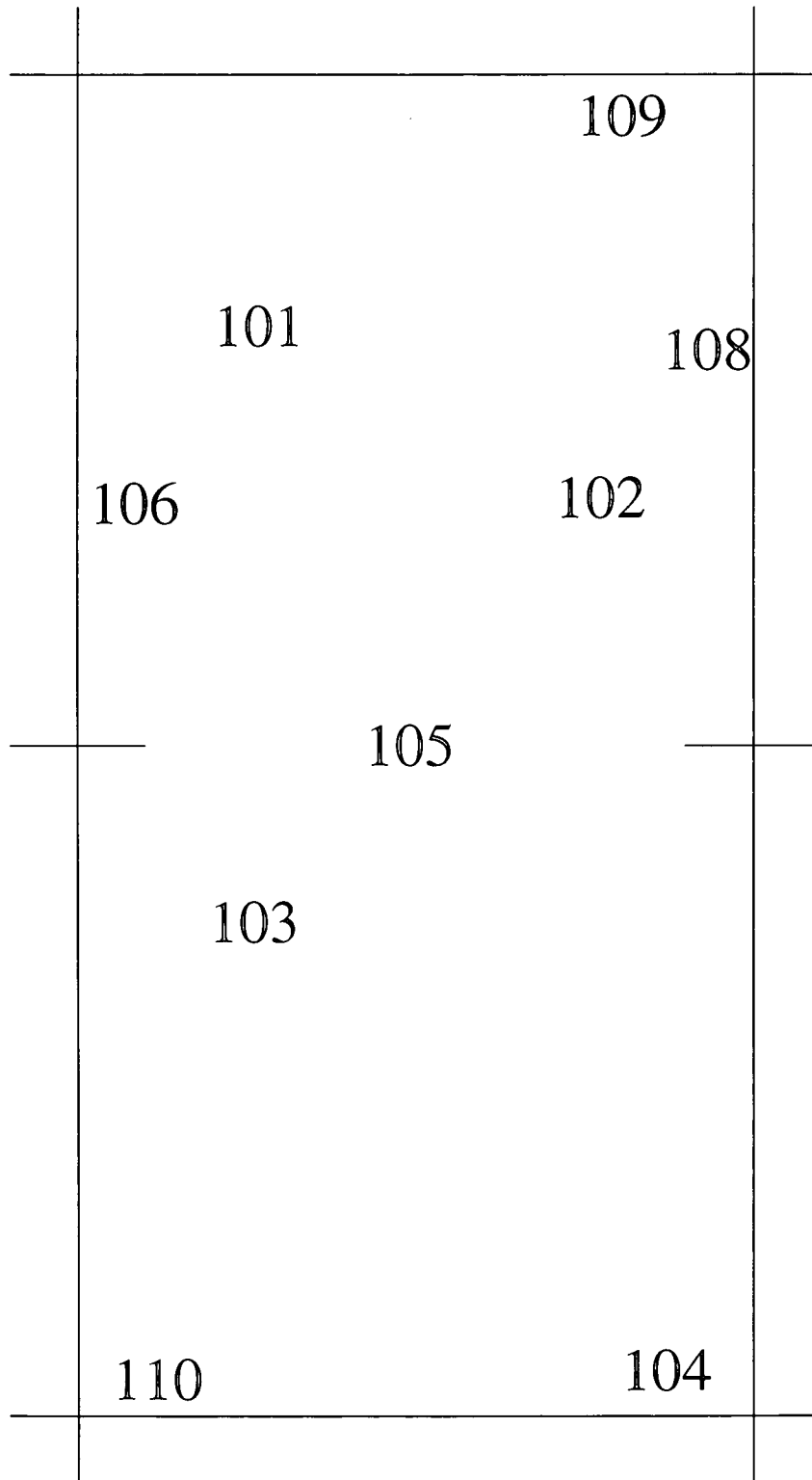
Directed

by: J.A. Neshum DOE M471.3-1

Contains information which may be exempt from public release under the Freedom of Information Act (5 USC 552), exemption number(s) 2. Approval by the Department of Energy prior to public release is required.

732 pit

Be sample locations
707-05062004-31-XXX



Beryllium Contamination Closeout of Building 732

The historical record indicates this building was not on the beryllium historical list. Surveys collected inside the tank, that was located in the building contained beryllium at 0.3 ug/100 cm². The tank and all associated pipe was removed prior to the final survey.

The final beryllium surveys for this survey unit was collected on May 6, 2004. All samples collected were below the reporting limit of 0.1 ug/100 cm². Samples were collected on horizontal surface from floor to ceiling.

Since no removable beryllium was detected, no further sampling is required.

Industrial Hygiene Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
732-05062004-31-101	SURVEY	1	FINAL SURVEY NE QUADRANT FLOOR	WIPE	04C0478	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
732-05062004-31-102	SURVEY	1	FINAL SURVEY SW QUADRANT FLOOR	WIPE	04C0478	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
732-05062004-31-103	SURVEY	1	FINAL SURVEY SE QUADRANT FLOOR	WIPE	04C0478	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
732-05062004-31-104	SURVEY	1	FINAL SURVEY SW SURVEY FLOOR	WIPE	04C0478	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
732-05062004-31-105	SURVEY	1	FINAL SURVEY CENTER FLOOR	WIPE	04C0478	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
732-05062004-31-106	SURVEY	1	FOOTER SHELF NE QUADRANT	WIPE	04C0478	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
732-05062004-31-108	SURVEY	1	FINAL SURVEY FLOOR DOORWAY	WIPE	04C0478	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
732-05062004-31-109	SURVEY	1	FINAL SURVEY SHELF SOUTH WALL	WIPE	04C0478	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
732-05062004-31-110	SURVEY	1	FINAL SURVEY LEDGE SOUTH WALL	WIPE	04C0478	BERYLLIUM AND B	< 0.1000 _ UG/100CM2

Building Subtotal: 9

Hygienist Subtotal: 9

Company Subtotal: 9

Grand Total 9

ATTACHMENT D
Data Quality Assessment

DATA QUALITY ASSESSMENT (DQA)

Verification & VALIDATION of Results

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. A Data Quality Checklist was completed as required in PRO-478-RSP-16.04 *Radiological Survey/Sample Data Quality Analysis For Final Status Survey*. The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses (specifically beryllium).

DQA criteria and results are provided in a tabular format for each set of surveys or chemical analyses performed; the radiological survey assessment is provided in Table D-1, and the beryllium assessment in D-2. A data completeness summary for all results is given in Table D-3.

All relevant Quality records supporting this report are maintained in the B707 Characterization Project Files. This report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of approval by the Regulators. All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location.

Survey designs were implemented based on the transuranic limits used as DCGLs in the unrestricted release decision process. All survey results were evaluated against the Transuranic DCGLw (100 dpm/100cm²).

Summary

In summary, the data presented in this report have been verified and validated relative to the quality requirements and project decisions as stated in the original DQOs. All data are useable based on qualifications stated herein and are considered satisfactory without qualification.

Based upon an independent review of the radiological data, it is determined that the original project DQOs satisfied MARSSIM guidance. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable procedures, survey units were properly designed and bounded, and instrument performance and calibration were within acceptable limits. However, contamination levels at numerous locations are above applicable unrestricted release levels, and therefore the structures will not be released in an unrestricted manner.

Table D-1 V&V of Radiological Surveys – B731/732

V&V CRITERIA, RADIOLOGICAL SURVEYS		K-H RSP 16.00 Series MARSSIM (NUREG-1575)		
QUALITY REQUIREMENTS				
	Parameters	Measure	Frequency	COMMENTS
ACCURACY	Initial calibrations	80%<x<120%	≥1	Calibration using Alpha Group procedure and approved technicians.
	Daily source checks	80%<x<120%	≥1/day	Performed daily/within range.
	Local area background: Field	Typically < 10 dpm	≥1/day	All local area backgrounds were within expected ranges
PRECISION	Field duplicate measurements for TSA	≥5% of real survey points	≥100% packages	N/A
REPRESENTATIVENESS	MARSSIM methodology: Survey Units 707003	Statistical	NA	Random w/ statistical confidence.
	Survey Maps	NA	NA	Random measurement locations controlled/mapped to ±1m.
	Controlling Documents (Characterization Pkg; RSPs)	Qualitative	NA	Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files); thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	Units of measure	Dpm/100cm ²	NA	Use of standardized engineering units in the reporting of measurement results.
COMPLETENESS	Plan vs. Actual surveys Usable results vs. unusable	>95% >95%	NA	See Table C-3 for details.
SENSITIVITY	Detection limits	TSA: ≤50 dpm/100cm ² RA: ≤10 dpm/100cm ²	all measures	MDAs ≤ ½ DCGL _w per MARSSIM guidelines.

Table D-2 V&V of Beryllium Results – B731/732

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		
BERYLLIUM	Prep: NMAM 7300 METHOD: OSHA ID-125G	LAB ---->	Johns Manville Corp. Denver, Co.	
		RIN ---->	05C0008 04C0478	
QUALITY REQUIREMENTS		Measure	Frequency	COMMENTS
ACCURACY	Calibrations		≥1	No qualifications significant enough to change project decisions, i.e., classification of Type 2 facilities confirmed. All results were below associated action levels.
	Initial	linear calibration	≥1	
	Continuing	80%<%R<120%	≥1	
	LCS/MS	80%<%R<120%	≥1	
	Blanks – lab & field	<MDL	≥1	
	Interference check std (ICP)	NA	NA	
PRECISION	Laboratory Control Sample Duplicate	80%<%R<120% (RPD<20%)	≥1	
	Field duplicate	all results < RL	≥1	
REPRESENTATIVENESS	COC	Qualitative	NA	
	Hold times/preservation	Qualitative	NA	
	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative	NA	
COMPARABILITY	Measurement units	ug/100cm ²	NA	
COMPLETENESS	Plan vs. Actual samples Usable results vs. unusable	>95% >95%	NA	
SENSITIVITY	Detection limits	MDL of 0.10ug/100cm ²	All measures	

Table D-3 Data Completeness Summary – B731/732

ANALYTE	Building/Area/Unit	Sample Number Planned (Real & QC)	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Beryllium	Survey Area: A Survey Unit: 707005 Interior	19 Random swipe samples on floor, and elevated surfaces	19 Random swipe samples on floor, and elevated surfaces	No beryllium contamination found at any location, all results below the regulatory limit	OSHA ID-125G RIN 04C0356, 05C0008 No results above action level (0.2ug/100cm ²) or investigative level (0.1 ug/100cm ²). See attached map for sample locations.
Radiological	Survey Area: A Survey Unit: 707005 Interior	15 α TSA (15 – Random/Systematic) and 15α Smears – Random/Systematic) 100% scan of all accessible surfaces	15 α RSA(15 – Random/Systematic) and 15 α Smears - Random/Systematic) 167 Biased measurements 100% scan of all accessible surfaces	Extensive contamination numerous locations from DOE added nuclides above the unrestricted release levels	Transuranic DCGLs Numerous results above action level